Kaynar Keeps It All Under One Roof To Deliver High-tech Fasteners To Aerospace Clients

Brian Day, CEF, senior processing engineer at Kaynar, shows off some of the fasteners in bins in the nut staging area. Some of the finishes visible here include silver and cadmium plating, and chromate conversion coating.

Computerized equipment figures prominently in Kaynar's plan for quality and quick turnaround. All loads are scanned for tracking of all operations and every load has a complete work history. The system operates on "real time," sending data every five seconds.

For more than 50 years, Kaynar, a divivion of Kaynar Technologies Inc., has held title to a sterling reputation as one of the aerospace industry's premier sources for high-tech fasteners. A totally integrated company, Kaynar keeps its reputation intact by having its R&D, design, finishing, quality assurance and manufacturing all under one roof in Fullerton, California. This turnkey set-up makes for a strong manufacturing team, insuring unique designs, quality, efficiency and quick turnaround.

Kaynar Technologies Inc. (KTI) designs, develops and manufactures a wide range of speciality components and tooling systems and provides related services, used primarily by original equipment manufacturers and their subcontractors, to produce aircraft and defense products. KTI also serves the automotive, electrical and other industrial markets and their associated after-markets.

Company management believes in advancing technical and manufacturing excellence developed within a total quality management (TQM) framework. KTI's clients demand nothing but the best because the safety of their respective customers and the reliability of their specialty products are at stake. Companies using Kaynar products include aerospace giants such as Boeing, British Aerospace, General Electric, Lockheed-Martin, Northrop Grumman, Pratt & Whitney, Snecma, Bombardier Aerospace and Rolls-Royce.

Plating lines are fully enclosed to keep out contaminants and make it easier to contain and exhaust fumes.

Kaynar introduced the first all-metal, lightweight, elliptical self-locking nut, and was also the first to cold-form exotic metal fasteners. The company offers a wide range of self-locking fasteners, available in a variety of materials for all applications—from lightweight composite or aluminum nuts for airframes, to high-

Values* of a Successful Company

- Provide ideas, products and services that exceed customers' expectations.
- Empower each other to act in the best interests of our customers, our company and our team.
- Continually improve by embracing change and employing innovation.
- Communicate effectively.
- Create and use accurate documentation.
- Take pride in our work and our company.
- Know our job and strive to do it right the first time.
- Set and meet our goals as a team.
- Operate with integrity and high ethical values.
- Ask "How can I help?" rather than say, "It's not my problem."

*As stated on KTI's web site and promotional materials.

strength, high-temperature engine nuts manufactured from A-286, Waspaloy and Inconel. Kaynar provides traditional finishes, as well as environmentally friendly coatings, such as water-based cetyl and solvent-free lubricants. The company continues to develop new products—many are variations of the more than 10,000 items in its product arsenal.

In Fullerton, CA, where Kaynar is located, more than 950 people are employed to do everything involved in producing high-quality fasteners: Research, design and development, company administration, working with customers, forming product from wire, forging, heat treating, tapping, drilling, machining, assembly, and, of course, finishing. Other divisions of KTI include Microdot in Placentia, CA, APS and K-FAST in Fullerton, CA, Recoil in Australia, and Femipari KFG in Hungary.

Finishing Improvement Plan

Finishing doesn't take a back seat at Kaynar. There are 53 people in the finishing department and 16 in heat treating. Company management is very aware that, since 1992, commercial air traffic has been growing at five to six percent annually. Kaynar realizes that such steady growth underscores a need for its products, and keeps taking positive steps to secure a lion's share of that niche. That share is equal to about 46 percent of the target market in engine and airframe fasteners.

The upgrading of Kaynar's finishing department is a prime example of the progressive steps being taken to remain a leader.The department is into its second year of its plant improvement program, with two more years to go.

Managers like Larry Phipps, total production engineer (department supervisor), Brian Day, CEF, senior processing engineer, and Al Gerbracht, production manager for plating and heat treating, clearly understand Kaynar's mission and support role. Brian says: "Our niche is in providing a quality product. We just want to keep good product going out the door—and going out the door as quickly as possible."

Accompanying photos in this article show some of the sample fasteners produced, to give readers an idea of the finishing challenges involved in Kaynar's operations. Some of the fasteners produced withstand temperatures up to 1400 °F.

Assisting in keeping product moving are two automatic plating lines that are in continuous operation: A 61-ft silver line and a 64-ft cadmium line. The two lines are fully enclosed to keep out contaminants and make it easier to contain and exhaust fumes. Perchloroethane is currently being used in the vapor degreaser, which

Another division of KTI that's located in Fullerton, K-FAST Automatic Tooling, is considered a leader in access designs and fastener delivery systems in use at major aerospace companies throughout the world.

An overview of some fasteners developed in connection with airframe designers to allow fast, repetitive and reliable installations. From top to bottom: Hexagon deep counterbore nut (available in aluminum, steel corrosion-resistant steel & titanium); captive washer nut; low profile hex nut (lightweight, reuseable); 8-spline nut (resists unapproved torquing); seal nut (two-way seal—threads & surface); low profile 12-point nut (lightweight, reuseable); and a self-aligning nut (one-piece assembly for non-parallel surfaces up to 8°).

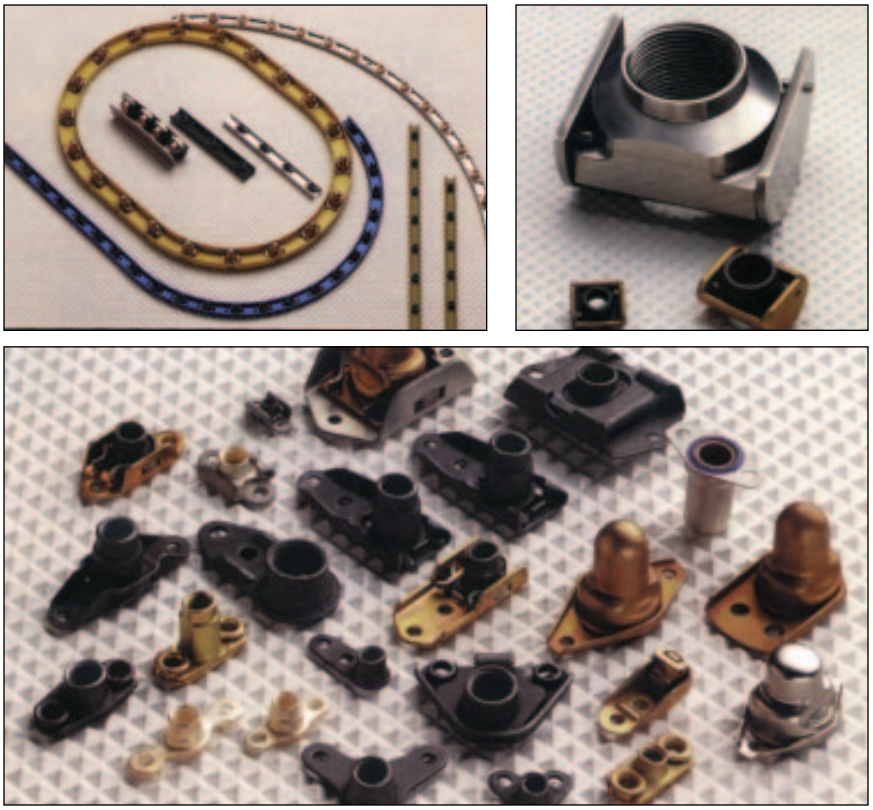
is enclosed to the ceiling to minimize solvent loss. Plans call for the degreaser to be phased out in two–three years in favor of an aqueous cleaning system.

All process tanks are filtered, including the cleaners and acids. All have flow sensors and conductivity meters.

From a water and wastewater treatment standpoint, Kaynar currently employs chlorine reduction of cyanides. Electrowinning is used for recovery of silver, copper and cadmium. Plans are to close-loop all the rinses and use ion exchange units to return deionized water back to the line.

The Air Quality Management District (AQMD) is getting tough on the solid film lubricant currently being used. The company plans to install an incinerator to remove solvent vapors. A new area, equipped with incinerators, is being planned for future application of the dry film lubricant.

The heat treating department works closely with the finishing department and offers a wide variety of capability, too: Vacuum heat treating, vacuum treating with oil quenching, heat treating with gas quenching, molten salt quenching, and furnaces for tempering and ageing.



(Top left) Gang channels—Produced in straight or radiused versions, these assemblies are for applications that require multiple, equally spaced anchor-type nuts. Gang channels enable rapid assembly and disassembly of structure sections. Typical applications include opening around aircraft access doors and leading edges. (Top right) Barrel nuts—High-strength, self-locking nuts for use in locations where wrenching space is not available. Typical applications include the assembly of aircraft wings and tail attachments. Made of alloy steel, corrosion-resistant steel and Inconel, finishes include Cd plating and solid film lubricants. (Bottom) Anchor nuts—Especially useful in blind locations or where an attached nut facilitates maintenance. The nut mounting lugs may be riveted, welded or screwed to the structure. They insure positive positioning of the mating bolt and are self-wrenching. Special nuts, such as self-sealing domes, prevent fuel leaks.

Certifications & Awards

Kaynar's management is proud of the distinctive certifications held by the company: ISO 9001, AS9000 and certification by the National Aerospace Defense Contractors Accreditation Program (NADCAP), which is administered by the Performance Review Institute. Kaynar is believed to be the first fastener manufacturer to receive all available NADCAP third-party accreditations for general quality systems, heat treat operations, test laboratory, nondestructive testing, chemical processing (plating) and fastener manufacturing operations.

Kaynar was named "Contractor of the Year 1998 for Large Business" by the Defense Industrial Supply Center (DISC). The award states: "Kaynar Technologies is hereby recognized for its exemplary performance as a large business manufacturer. During the past year, Kaynar has provided the high quality fasteners as indicated by their 100 percent quality automated best value model (ABVM). In addition, Kaynars' cooperation in responding to DISC's requests for quotations and telephone inquiries has exhibited Kaynar's commitment to providing outstanding customer support, and these efforts are greatly appreciated."

With its support divisions working in close alignment, certifications in place, and awards highlighting its achievements, Kaynar seems clearly to have the aerospace fastener market bolted down. P&SF

Kaynar has recently installed a new rinsewater treatment system. To the right of the control panel are the DI resin units. The smaller resin columns visible to the left are for the cyanide treatment system.